

BRAND TRUST AND TECHNOLOGY MEMBERS:  
APPLYING THE TECHNOLOGY ACCEPTANCE MODEL

A THESIS

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## **ABSTRACT**

**THESIS:** Brand trust and technology members: Applying the technology acceptance model

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This study applied the all three variations of the technology acceptance model, diffusion of innovation model, and work motivation theory and investigated how IT professionals weighed different factors, and how these factors interacted, when they determined a product's usefulness. This will help improve the relevance and usefulness of information provided in product descriptions written specifically to resonate with IT professionals. A between-subjects online experiment was used, followed by an eye tracking study. Participants were given a scenario, previewed an advertisement, and then answered questions regarding their perception of the product's usefulness, ease of use, relevance to their job function, and their attitude toward the product. Data was analyzed utilizing a standard multiple regression analysis. Study results indicated an interaction between the two predictive factors - perceived ease of use (PEOU) and job relevance.

## TABLE OF CONTENTS

Acknowledgements	2
Abstract	3
Introduction	5
Literature Review	7
Method	21
Design	21
Study Stimuli	21
Pretest	23
Main Study	27
Results	31
Discussion and Conclusion	32
Contributions and Implications	35
Limitations and Future Research	36
Appendices	
Appendix A	43
Appendix B	44
Appendix C	45
Appendix D	49
Appendix E	52

## **Introduction**

Accompanying rapid technological innovations and progress over the past couple decades has been the growing importance of IT (Information Technology) professionals (Gallivan, 2004). As there's been an increased number of entry level IT professions, there's been a greater emphasis on IT professionals' role in facilitating business operations, leading to an increase in IT management positions (Lee, Trauth, & Farwell, 1995). Specifically, within the information systems (IS) sector of IT, professionals saw a "realignment of IS activities in organizations," which placed IS professionals in decision making positions; and consequently, positioning them as a profitable target audience for marketing communicators (Lee et al., 1995, p. 313).

There are "few professions in human history [that] have seen such rapid change" (Lee, 1999, p. 856). Specific changes IT professionals face include: changes in platforms, technologies, and programming languages (Gallivan, 2004). This forces IT professionals to grow accustomed to the constant innovation adoption and thus becoming more accepting of innovations. This makes it imperative for marketing communicators within the technology industry to understand factors that influence IT professionals' innovation adoption tendencies. If marketing communicators understand the factors that influence IT adoption, they can create more relevant marketing communication messages that encourage technological adoption.

Fielden's (2004) research indicated that marketing communicators have fallen short of meeting IT professionals' information needs. Fielden (2004) discovered that the largest barrier marketers face to spark IT professionals' innovation adoption revolved around failure to meet IT professionals' expectations in the marketplace. Failure expanded beyond the innovations' failure to meet expectations, but also, "multiple paths of miscommunication...and lack of understanding of both core technical concepts and business processes" (Fielden, 2004, p. 233). Specifically,

Fielden (2004) argued that while products typically had the features the end user desired, these concepts were not well articulated. Therefore, the objective of this study is to investigate factors that shape an IT professionals' perception of a product's usefulness as well as their attitude toward using the product. The goal is to provide marketing communicators insight to help them develop messages that meet the information needs and expectations of IT professionals.

Fielden's (2004) research suggested three possible variables that influence an innovation's adoption: the product's characteristics, marketers' ability to communicate product characteristics, and the receiver. Marketing communicators need to know how IT professionals use their product, so marketing messages can be written to associate IT professionals' needs to the product.

Both the extended technology acceptance model (TAM2) and the diffusion of innovation models theorize adoption predictors, focusing on both the innovation and the receiver. TAM2 focuses on two of the receiver's beliefs – perceived ease of use and perceived usefulness - regarding an innovation's characteristics, and how these beliefs influence the acceptance or rejection of a piece of technology. Overall, the TAM was created to trace how external variables affect internal user beliefs and attitudes (Legris, Ingham, & Collette, 2003). The diffusion of innovation model focuses on the innovation's characteristics and how they play a role influencing innovation adoption decisions (Weigel, Hazen, & Cegielski, 2014).

Since TAM's original creation, it has accounted for nearly 40% of variance in both usage intentions and behavior and is positioned as a powerful model for predicting user acceptance (Venkatesh & Davis, 2000). Perceived usefulness (PU) is an internal user belief introduced in the TAM, which has consistently proven to be a determinant of usage intention. Research done on perceived usefulness indicated that similar people perceive the construct similarly (Park, Lee, &

Cheong, 2007). Past research focused on technology acceptance within the industries of healthcare, education, and tourism (Hu, Clark, & Ma, 2003; Lee, Kim, & Lee, 2006; Vishwanath, Brodsky, & Shaha, 2009). The original intent of the research was to study job relevance and perceived ease of use (PEOU) utilizing different study conditions to pinpoint the approximate need for each to form PU. However, the eventual failed manipulation check allowed the study to instead take a step back and see how the two determinants interact by testing them both with multiple messages; which influenced the overall experimental design.

Therefore, it is important to know and understand the factors that shape this belief. This is the guiding rationale for studying a specific occupation, information technology, with the goal to understand how professionals in this field evaluate a product's usefulness. Both the TAM2 and the diffusion of innovation model will be useful in understanding how external factors influence an IT professional's perception of a product's usefulness and their attitude toward using the product.

## **Literature Review**

**The innovation-decision process.** Before making a purchase decision, consumers conduct information searches to reduce the level of perceived risk they have about a product (Murray, 1991). This is the knowledge-building stage in the innovation-decision process. Knowledge built in this stage will help shape the consumer's attitude toward the product (Rogers, 1995). An attitude could be whether or not the consumer thinks the product has a higher perceived level of risk or whether the product meets the consumer's needs. Attitudes formed eventually affect the following step in the innovation-decision process; the consumer's decision to accept or reject the innovation (Rogers, 1995).

Marketers categorized perceived risk into different levels of uncertainty. One level of uncertainty is matching uncertainty, which is “uncertainty about the product’s ability to fit consumer’s needs” (Heiman, McWilliams, & Zilberman, 2001, p. 72). This level of uncertainty is related to how consumers perceive their needs and a product’s ability to meet them. Within the high-tech industry, perceived risk is increased due to the complexity of high-tech products (Xingyuan, Li, & Wei, 2010, p. 243). It is possible that this is the type of uncertainty Fielden’s (2004) research uncovered when she reported that IT professionals’ expectations in the marketplace were not being met. For example, it’s possible that after reading product information an IT professional did not believe the product fit their occupational needs. This would lower the product’s perceived usefulness for the IT professional because the digital product designer and marketer failed to match their required tasks to product features.

This aligns with a core assumption of technology acceptance model 2, that the consumer’s belief of an innovation’s usefulness predicts their intent to use the innovation (Venkatesh & Davis, 2000). Perceived usefulness (PU) is an individual’s belief of how much a particular system “would enhance his or her job performance,” and is affected by both affective and cognitive external factors. (Lederer, Maupin, Sena, & Zhuang, 1998, p. 195; Venkatesh & Davis, 2000). An external factor can be a product feature. This makes a technology’s features important because they help build the user’s perceived usefulness, which mediates the relationship between the features and the user’s intent to use a product.

This is consistent with a core assumption introduced in the diffusion of innovations model, that an innovation’s adoption partly relies on the innovation’s attributes (Rogers, 2003). In many cases, an innovation’s attributes could be product features. Most research conducted on technology adoption focuses on how a user’s internal beliefs (e.g. perceived usefulness)



regarding an innovation affect whether or not they adopt the technological innovation (Vishwanath, 2009). However, fewer studies focus on the external factors that shape the user's pre-adoption beliefs. This study focused on the external factors that influence a user's perceived usefulness and attitude toward a product.

**Advertising as information.** To better communicate a product's usefulness and mitigate uncertainty, advertising is a tool to provide consumers information and bring awareness to their product's capabilities (Nelson, 1974). According to the technology acceptance model (TAM), consumers are "quite rational and make systematic use of available information" (Marangunić & Granić, 2015, p. 84). Understanding that consumers use the information conveyed in advertising strategically positions marketing communicators to a point where they can selectively include key messages and messaging cues. Specifically, marketing communicators embed quality cues, which serving as "information stimuli related to a product's quality that can be learned by consumers before use" included in marketing messages (Heiman et al., 2001, p. 73; Vishwanath, 2009).

Quality cues are broken down into intrinsic and extrinsic cues, where intrinsic cues relate to the product's inherent characteristics that cannot be separated from the product, such as a product's usefulness or flavor. Extrinsic cues communicate changeable characteristics like a product's color (Heinman et. al, 2001, p. 73; Vishwanath, 2009). Intrinsic quality cues make it possible for marketing communicator to convey a product's usefulness through advertising by selectively highlighting relevant key product attributes. Of course, the cues that advertisers use to communicate a product's usefulness will vary based on product category and the desired target audience. For instance, an individual may be more willing to accept and use a product in one specific product category over another (Midgley & Dowling, 1978). In health communication,

Vishwanath et al. (2009) investigated the qualities that mattered to physicians when they evaluated work-related innovations. They found a relationship between occupation and varying product needs. Therefore, marketing communicators should identify the type of information that best fulfills consumer information needs to help them associate their work-related needs with the advertised product. This information can guide marketers when they decide what messaging elements to implement in their marketing communication and which quality cues to embed in them.

**External factors influencing perceived usefulness.** When extending the technology acceptance model (TAM), Venkatesh and Davis (2000) added social influences and cognitive instrumental processes as external factors that influence a user's perceived usefulness (PU). The external, cognitive instrumental processes thought to influence perceived usefulness include: job relevance, output quality, perceived ease of use, and result demonstrability (Lederer et al., 1998, p. 195; Venkatesh & Davis, 2000). These external factors were added based on converged findings from research produced on work motivation theory, action identification theory, and task-contingent decision making. Work motivation research findings indicated that users' usage decisions are driven by a perceived link between their goals and the actions required to obtain them (Tosi, Locke, & Latham, 1991). A user assesses a product's qualities to determine if the product's qualities meet the requisite needs to obtain their goal. This process is often referred to as task-matching (Venkatesh & Davis, 2000).

Task-matching is considered to be relatively consistent for individuals in similar occupations because "users possess distinct knowledge about their job situation, which they can use as a basis for determining what tasks can be performed with a given system" (Venkatesh & Davis, 2000, p. 191). This leads us to believe, and has been supported, that individuals with

similarities (e.g. occupation) often have similar interpretations of usefulness (Park et al., 2007). Additionally, their distinct knowledge of the task is often accompanied by knowledge of tools required to accomplish the task. This narrows their information search to look for tools that have the desired attributes to complete tasks and accomplish their goals. Marketing communicators should then consider segmenting target audiences by occupation to create messaging content about an innovation that highlights the desired attributes and associates the product with the user's work-related goals. By doing this, communicators can disseminate information that helps users associate their product with their goals, while also reducing the amount of matching uncertainty the user may have.

The level of expertise, experience with the product category, and prior knowledge an individual has will also impact how they weigh external factors to evaluate products (Heiman et al., 2001, Venkatesh & Davis, 2000). Individuals with a higher level of prior knowledge “will analyze quality attributes, beliefs, and judgments about products more quickly than those with less prior knowledge” (Heiman et al., 2001, p. 71). These individuals know which qualities to look for when evaluating products and rely more on product information (Heiman et. al, 2001). This affirms that the information provided to those well-informed about the product category will be utilized to help them make a decision and will be less driven by affective factors.

**Cognitive factors.** The strength of the four cognitive instrumental process predictors added to TAM is that their influence shaping perceived usefulness does not decrease as the user gains experience with the product (Venkatesh & Davis, 2000). On the other hand, the social influences' impact on a user's perceived usefulness attenuates as the user gains more experience with the product. IT professionals have the experience of working with past and similar innovations and are expected to have a high level of technical skill and knowledge (Gallivan,

2004; Lee, 1999). Their level of expertise gives them the ability to quickly evaluate technology product information to search for qualities they know will help them achieve their occupational goals. This study focused exclusively on the cognitive instrumental processes that impacted perceived usefulness. It is rational to assume that IT professionals have greater expertise and experience with technological products, and consequently, that social influences will affect their decision to use a product less than the cognitive processes. More specifically, this study focused on the cognitive instrumental processes of job relevance and perceived ease of use. This omitted the cognitive instrumental processes of output quality and result demonstrability.

**The role of perceived ease of use and job relevance.** There are several reasons that job relevance and perceived ease of use are under study and not output quality or result demonstrability. Output quality puts a greater emphasis on how a system performs tasks necessary to the job and result demonstrability is the “tangibility of results of using the technology” (Chismar & Wiley-Patton, 2002, p. 155). Job relevance is “an individual’s perception regarding the degree to which the target system is applicable to his or her job” (Venkatesh & Davis, 2000, p. 191). If an individual believes that a product is applicable to their job (job relevance), then they are also accepting that the product is capable of performing the task needed to complete their job (output quality). If they didn’t believe the product had the competence to perform the task, they wouldn’t find the product applicable.

When Venkatesh and Davis (2000) introduced output quality, they suggested that output quality judgments “are less likely to be used for excluding options from consideration” (p. 191). This is because, compared to job relevance, output quality is focusing more on the profitability of adopting the innovation whereas job relevance focuses more on the compatibility of the product. When considering products, consumers go through two steps of screening, first for

compatibility, and after confirming compatibility, screening for options with the highest profitability (Venkatesh & Davis, 2000). Therefore, this study excluded output quality to focus more on the first step, screening for compatibility. Result demonstrability is deemed to be too specific of a construct to form visual and information stimuli that would appeal to a large enough audience. This is because the measurement of results (whether they are good or bad) is heavily contingent on the situation and job the individual is attempting to complete. Therefore, with the goal to create stimuli that appeal to a greater number of people, result demonstrability was omitted.

**Perceived ease of use.** Perceived ease of use (PEOU) is included in all variations of the TAM (Davis, 1989; Venkatesh & Davis, 2000). Perceived ease of use is “the degree to which a person believes that using a particular system would be free of effort” (Lederert et al., 1998, p. 195). In both of the TAM models, PEOU has a direct relationship and influence on perceived usefulness. Support for this relationship has been found in several studies across different industries (Igbaria, Zinatelli, Cragg, & Cavaye, 1997; Kim, Kim, & Shin, 2009). In many cases, the rationale to explain the relationship between PEOU and PU is that if a system is perceived as easy to use, the system will also likely be rated as useful (Davis, 1989). This is similar to Rogers (2003) construct of complexity, introduced in the diffusion of innovations model. Rogers (2003) posited that the more complex an innovation is, the less likely the innovation will be adopted. This study evaluated the relationship between PU and PEOU, with a focus on how IT professionals weigh PEOU when determining PU.

**Job relevance.** As mentioned, job relevance is “an individual’s perception regarding the degree to which the target system is applicable to his or her job” (Venkatesh & Davis, 2000, p. 191). Job relevance was added to the extended version of the technology acceptance model

(TAM2) after the authors evaluated and implemented task technology-fit and work motivation research. Similar to PEOU, job relevance has also been found to have a direct relationship with PU (Marangunić & Granić, 2015). Job relevance is a judgment a user makes about the product, affecting their internal belief regarding a product's usefulness. This develops a need to learn what information IT professionals are weighing when they determine whether or not a product is compatible with their needs. If marketers know what information IT professionals are seeking, they can embed cues in their messaging that resonate with the IT professionals, building their sense of the product's usefulness.

**The relationship between job relevance, perceived ease of use, and perceived usefulness.** However, it's possible that the problem isn't as simple as identifying whether IT professionals prefer messages that highlight PEOU or job relevance. One of TAM's and the diffusion of innovation theory's biggest criticisms is the large number of conflicting and inconclusive studies for both models. Zhang, Guo, & Chen (2008) argued this may be the result of the difficulty of testing both theory's factors due to their high correlation with another. In contrast, Venkatesh and Bala (2008) argued that there is no crossover effect between the determinants of PEOU and PU.

Perceived ease of use is theorized to be the user's belief of how easy it would be to adopt a program after considering their beliefs of their individual procedural knowledge and self-efficacy. Perceived usefulness is theorized to be built upon the user's belief of the instrumental, extrinsic benefits of using the system. Venkatesh and Bala (2008) postulated that the external, instrumental benefits will not influence the user's belief regarding their ability to adopt a new system and vice versa; that an individual's belief in their ability to adopt a system will not influence the instrumental applicability or benefits from using the system.

This argument against crossover effects is presented in the introduction of TAM3; an integrated model of the first two technology acceptance models. When building the extended theoretical acceptance model (TAM2), Venkatesh and Davis (2000) based the addition of the four cognitive determinants of perceived usefulness on three different theoretical paradigms. This includes the action identification theory, which postulated that there is a clear distinction between high and low-level identities. Identities are considered actions. High-level identities represent the goals the user has, or what it is they plan to accomplish; whereas the low-level identities are the means to achieve high-level goals. For example, needing to write a document would be the high-level task and the ability to strike keys and use a mouse would be low-level identities (Venkatesh & Davis, 2000). In TAM3, Venktatesh and Bala (2008) identified PEOU as a low-level identity and PU as a high-level identity for the very reason that PEOU is the belief in the ability to accomplish the action and PU is applying that ability to attain the goal.

This demonstrates that lower-level identities can influence the ability to accomplish high-level identities. Therefore, a user could use their perception of their ability to use a system (PEOU) to assess the likelihood that they'll have enough skill to apply a system to attain their goals. If the user becomes discouraged because they do not perceive that they will be able to use the system to accomplish the task, the system is no longer relevant to their job and decreases the system's usefulness; as it cannot be used to attain the original goal. This is supported by Lu and Gustafson (1994) who found, "if the difficulties of use cannot be overcome after exploring the systems, persons then often abandon the systems" (p. 328). This would indicate that PEOU interacts with the system's relevance to the user; and consequently, their perception of the system's usefulness.

Chan and Teo (2007) pointed out the lack of research focused on interaction effects in TAM research despite the varied findings in relationships in the core TAM model. In their meta-analysis of TAM research, the authors noted the lack of a “clear ratio for the coefficients of PU and PEOU” (Chan & Teo, 2007, p. 13). They concluded that the inconsistent findings are possibly the result of testing the relationship in various settings with various types of technology. For example, Adams, Nelson, and Todd (1992) tested five different software applications only to have varying results regarding the relationship between PU and usage and the relationship between PEOU and usage. Chan and Teo (2007) referred to different areas of study in TAM as “regions” and that PEOU and PU coefficients are often contingent on the region of TAM that is under investigation. This study investigated whether the relationship of PEOU and PU is affected by a third variable to provide an alternative reason for past studies’ inconsistencies.

In their investigation of holistic experiences with technology, Agarwal and Karahanna’s (2000) supported the possibility of a crossover effect between PEOU and PU determinants. Specifically, in their model they found that computer self-efficacy, the individual’s confidence in using a system to accomplish a goal, explained 29.2% variance of PU. Because self-efficacy is one’s confidence in their ability to perform a particular task, and is considered a PEOU determinant in TAM3, this indicated a possible crossover of a PEOU determinant influencing PU (Bandura, 1997; Venkatesh & Bala, 2008). This is in addition to findings in task-technology fit literature. Past task-technology fit literature stated that individual abilities — operationalized as computer literacy, or in other words, an individual’s procedural knowledge — negatively influenced individual’s perceived fit between the task they wanted to accomplish and the technology (Goodhue, 1995). This is an example of a low-level identity influencing the task-matching process.



As previously mentioned, the relationship between PEOU and PU is empirically supported in several studies across multiple industries with the rationale that if “a system which is easy to use will result in increased job performance (i.e. greater usefulness) for the user” (Davis, 1989, p. 26; Igbaria et al., 1997; Kim et al., 2009). However, when the cognitive instrumental factors were included in TAM2, the key purpose was to acknowledge that users go through a task-matching process in which they look for a match between a piece of technology and the requisite tasks that need completed to achieve their goals. When Venkatesh and Davis (2000, p. 191) added the cognitive factors, they cited work motivation theory, action identification theory, and task-contingent decision making, all of which “share the view that the impetus for engaging in specific behaviors stems from a mental representation linking instrumental behaviors to high-level goals or purposes.”

Specifically, Venkatesh and Davis (2000) included job relevance as a determinant of PU because they believed that technologies that are below a minimum threshold of job relevance for an individual are screened out due to their incompatibility. This is based on the two-step compatibility test Venkatesh and Davis (2000) adopted from Beach and Mitchell’s (1996, 1998) image theory. Aforementioned, users first account for whether or not the piece of technology is compatible with their needs (job relevance); followed by a second step of screening to compare profitability between competing technologies (output quality). This would indicate that a minimum threshold of compatibility exists, meaning that if a user perceived a piece of technology to be below their compatibility threshold, then they would not adopt it because the usefulness of the technology is outside of the user’s expected level of instrumental value (Agarwal & Karahanna, 2000). This is supported by Keil, Beranek, and Konsynski (1995) who

concluded that “no amount of perceived ease of use will compensate for low usefulness” (Hu et al., 2003, p. 237).

Based on the assumption that a minimum threshold exists, it doesn't matter how easy it is for a user to adopt a piece of technology if the piece of technology does not rise above the minimum job relevance threshold. This is because when the technology no longer provides enough instrumental value it reduces the tool's usefulness to the user. This would indicate that a user's judgment of the technology's job relevance is going to interact with their PEOU because despite the ease of adoption, a certain level of relevance has to be met for the user to determine the system's usefulness. This, in addition to the previous rationale, is support for hypothesis 1:

The relationship between an IT professionals' perceived ease of use (PEOU) and perceived usefulness (PU) will be positively influenced if the user perceives the technology to have a high level of job relevance; however, if they have a low perceived level of job relevance, then the relationship between PEOU and PU will decrease.

**Attitude in the technology acceptance model.** Davis (1986) introduced the TAM as an adaptation of the theory of reasoned action (TRA) and predicted the acceptance or rejection of a piece of technology (Legris et al., 2003). In the TRA, Fishbein and Ajzen (1975) suggested that adoption follows a beliefs-attitude-behavior model. In their model, they posited that an individual's internal beliefs regarding the consequences of an action shapes their attitude toward the action; thus influencing their behavior and stressing the importance of attitude. However, in their TAM meta-analysis, Legris et al. (2003) pointed out how little of TAM research studied attitude toward the product. When attitude was included in TAM research, it was often tested as a determinant of intention to use or behavior.

Attitude is the evaluation of an individual's beliefs regarding the consequences of an action, which in this case, the action is determining technology acceptance or rejection (Jahangir & Begum, 2008). Both the TAM and the diffusion of innovation models support the assumption that perceptions regarding an innovation's characteristics influence the acceptance or rejection of the innovation or the speed of adoption (Rogers, 2003; Venkatesh & Davis, 2000). Thus, another research objective was to investigate user evaluation of perceived ease of use and how it affected a user's attitude toward a product.

**Perceived ease of use as a dynamic construct.** The role of perceived ease of use (PEOU) and its impact on technology adoption has been controversial since the formation of the technology acceptance model (Gefen & Straub, 2000). While some studies reported that PEOU did not appear to influence adoption, others reported that PEOU did have a strong impact on adoption (Chin & Gopal, 1995; Chin & Todd, 1995; Davis, 1989; Mathieson, 1991). To investigate the variance of these study results, Gefen and Straub (2000) questioned whether the nature of a task in relation to the piece of technology's intrinsic and extrinsic qualities caused PEOU's influence on adoption to vary.

Gefen and Straub (2000) found that PEOU affected IT adoption when the product's intrinsic qualities "contributed to the actual outcome for which the IT is being used" to accomplish (p. 8). For example, using a website to find information relies on the website's intrinsic qualities; and therefore, PEOU of the website has a more significant role because the intended outcome relies heavily on the user's ability to use the website. Whereas if someone used a website to purchase an item, the website would merely be means to achieving the end, giving PEOU less influence. This paints PEOU as a dynamic construct whose role and influence varies based upon attributes of the innovation and the required task.

Similar to the controversy of PEOU's impact on adoption, there are mixed reports on PEOU's influence on a consumer's attitude toward the product. Attitude is "based on the salient beliefs which a person has about the consequences of a given behavior and his or her evaluation of these consequences" (Jahangir & Belgum, 2008, p. 34). While some studies supported that PEOU has a direct relationship with attitude, others found that PEOU is mediated by PU and does not have a direct relationship with attitude (Agag & El-Masry, 2016; Kim, Kim, & Shin, 2009; Jahangir & Belgum, 2008). This is also contrary to information systems (IS) research findings which pinpointed perceived ease of use as a determinant of attitude, consistent with assumptions made in the theory of planned behavior (Madden, Ellen, & Ajzen, 1992). The theory of planned behavior (TPB) is one of TAM's theoretical frameworks, which introduced perceived behavioral control, and posited that an individual's belief of their ability, and access to requisite resources to complete a task, impacts their attitude toward the task and subsequent action (Madden et al., 1992). The idea is, by improving the intrinsic qualities of a product to make it easier to use will improve a user's perceived control and encourage them to complete an action.

Using the logic provided by Gefen and Straub (2000) that PEOU's influence on adoption varies based on attributes of the innovation and the required task; PEOU's relationship with attitude should also vary. In other words, PEOU will sometimes have a direct relationship with attitude while other times the relationship will be indirect. In the study, the stimulus is a tool in which participants use to help them accomplish work-related tasks; meaning that the intrinsic qualities contribute heavily to their intended outcome. Based on the rationale that the more important the product's intrinsic qualities are to the outcome increases PEOU's influence on attitude, it is posited that:

H2: Marketing communication messages that communicate high levels of perceived ease of use will influence an IT professional's attitude toward the advertised product.

## **Method**

### **Design**

This study used a between-subjects experimental design to examine the factors' influence on perceived usefulness (PU), and the interaction between PU determinants. The goal was to provide better insight into how IT professional's perception of a product's usefulness is shaped by internal beliefs shaped by marketing communication messages. Four scenarios about a hypothetical web browser were created based on the TAM2 factors adopted from Venkatesh and Davis (2000). These factors included job relevance and perceived ease of use (PEOU).

### **Stimuli**

A web browser was selected because the tool is general enough to be relevant to several users in the subject population, but also an important tool in an IT professional's daily functions. Due to changes in software development, web browsers are increasingly employed to develop mobile end-user applications; staking their importance in IT (Corral, Sillitti, Succi, Garibbo, & Ramella, 2011).

Prior research shows that prior product information, such as product or brand familiarity, moderated the effect of intrinsic cue utilization when consumers make product quality evaluations and product decisions (Rao & Monroe, 1988). Hence, it was imperative to use stimuli with a brand in which participants were unfamiliar with. Therefore, Zink, a fake brand, was introduced as a new web browser. All stimuli were presented in an advertisement format, which gave the name of the brand and listed the product's features, including the factors job relevance and PEOU. An introductory scenario informed the participant that the product they

were specifically evaluating was the web browser, and that they were specifically looking for a web browser to complete work-related activities. This scenario was identical for all conditions and can be found in Appendix A.

To determine the product features to include in the stimuli, three student software developers were interviewed as well as one entry-level software developer. To determine the product features that highlighted job relevance, developers were asked about browser features they particularly liked or wished they had that would make accomplishing tasks quicker. They were then asked questions about browser features that they found to not impact their work. The interview questions used to build the study's stimuli can be found in Appendix B.

To determine the product features that highlight perceived ease of use, developers were asked about technological features they felt made it easier for them to pick up and integrate a new piece of technology into their work. Then, to determine features to include in the low condition, the developers were asked about product features that often frustrated them because they required extra work.

Perceived ease of use features in the high condition emphasized a simple user interface structure that allowed for easy multitasking. For example, in the high condition, a product feature highlighted Zink's ability to offer side-by-side and grid tab layouts to convey how easy it is to use the browser to complete many different tasks. The low condition highlighted product features which emphasized features that were applicable to the user's job tasks but would require the user to complete more steps in order to effectively use the feature. For example, a product feature in the low condition was a library of extensions. A library of extensions would require the user to complete a few extra steps to learn about the extension, search for it, and then integrate it with the browser.

Job relevance features in the high condition highlighted features which emphasized the web browser's ability to cut out steps, offer additional access to technical documentation, or, highlighted the browser's compatibility with several devices. For example, the browser allows users to directly search StackOverflow, an online community for developers that offers documentation, cutting out the step to have to navigate to the website. The low condition highlighted features that are applicable to the professional's job but are did not provide features that would substantially increase the developer's productivity, for example, product features that highlight the browser's ability to customize font and track recently visited websites. All stimuli can be found in Appendix C.

## **Pretest**

**Pretest 1.** Before testing any of the conditions, 10 individuals pretested the stimuli and measurements. The goal of the pretest was to test the manipulation between the high and low research conditions, participants' ability to process the stimuli and questions, and an overall evaluation of the study's procedure. To complete the study, pretest participants were given a link to the study and assigned to one of the study conditions. Along with completing the study, pretest participants were asked about the instrument and stimuli's clarity, questionnaire structure, relevance to the field of technology, and length.

***Pretest scales.*** In order to remain consistent with existing research, scales and measurements were adapted from prior IT acceptance research, healthcare, the extended TAM (TAM2), research in advertising, consumer behavior, brand attitude, and the elaboration likelihood model (Bhattacharjee & Sanford, 2006; Liang, Xue, & Byrd, 2003; Mitchell, 1986; Mitchell & Olson, 1981; Petty, Cacioppo, & Schumann, 1983; Venkatesh & Davis, 2000).

Job relevance was measured on a 3-item scale on a 5-point Likert scale with endpoints “Strongly Agree” and “Strongly Disagree,” adopted from Bhattacharjee and Sanford (2006). Perceived ease of use (PEOU) was measured on a 4-item scale on a 5-point Likert scale with endpoints “Strongly Agree” and “Strongly Disagree,” adopted from Liang et al. (2003). Perceived usefulness (PU) was measured using a 4-item scale adopted from Bhattacharjee and Sanford (2006) and was recorded on a 5-point Likert scale. Intention to use (IU) was measured using a scale adopted from Venkatesh and Davis (2000) and were recorded on a 5-point Likert scale. Lastly, participant’s attitude toward the advertised product was recorded on a 4-item, 5-point semantic differential scale with endpoints “extremely good/extremely bad,” “harmful/beneficial,” “satisfactory/unsatisfactory,” and “favorable/unfavorable,” adopted from Petty et al. (1983).

To ensure participants fully understood the stimuli, four items measuring processing fluency were added. These items were taken from Landwehr, Labroo, and Herrmann (2011), recorded on a 5-point Likert scale with endpoints of “very easy” and “very difficult.” Appendix D offers a detailed list of each multiple-item scale.

***Pretest sample.*** Individuals who pretested the stimuli were either undergraduate students studying computer science employed as software developers, graduate students studying information and computer technology, or entry-level to mid-level software developers.

***Pretest statistical analysis.*** To test the stimuli’s manipulation, a composite means of the two factors, job relevance and perceived ease of use, were taken and evaluated for each study condition to look for a significant variance. The pretest indicated that the manipulation between the study conditions failed. This is clear by looking at the composite means of the low and high conditions and noting that no matter the condition (high or low), the composite mean varies little,



as seen in Table 1. Changes were made to the questionnaire structure to address comments made by pretest participants and a second pretest was conducted to test the design of the research stimuli.

Table 1

*Summary of Manipulation Check Between Pretest Conditions*

Condition	Job relevance ( <i>M</i> )	Perceived ease of use ( <i>M</i> )
High, high	4.0	4.42
Low, low	2.83	3.25
Job relevance (low), PEOU (high)	4.45	4.1
Job relevance (high), PEOU (low)	4.6	3.75

*Note.* For the manipulation check, the mean (*M*) for each condition was compared.

**Pretest 2.** The stimuli design presented in the online experiment positioned product features that communicated the two different factors in separate areas of the advertisement. Consequently, there was a concern about whether participants were fully exposed to both sets of product features, and subsequently, both manipulated factors. To test whether participants were looking at the entirety of the advertisement, an eye tracking study was conducted.

**Pretest method.** To access the study, participants came to an eye tracking lab. There, they were instructed by the researcher to follow a set of pre-developed tasks on a computer screen. After they completed each individual task they were asked a list of questions to test for their retention and comprehension of the information, as well as their intention to adopt the product. This was also a between-subjects design and the two conditions tested were the high, high (Condition 1) and low, low (Condition 2) stimuli conditions.

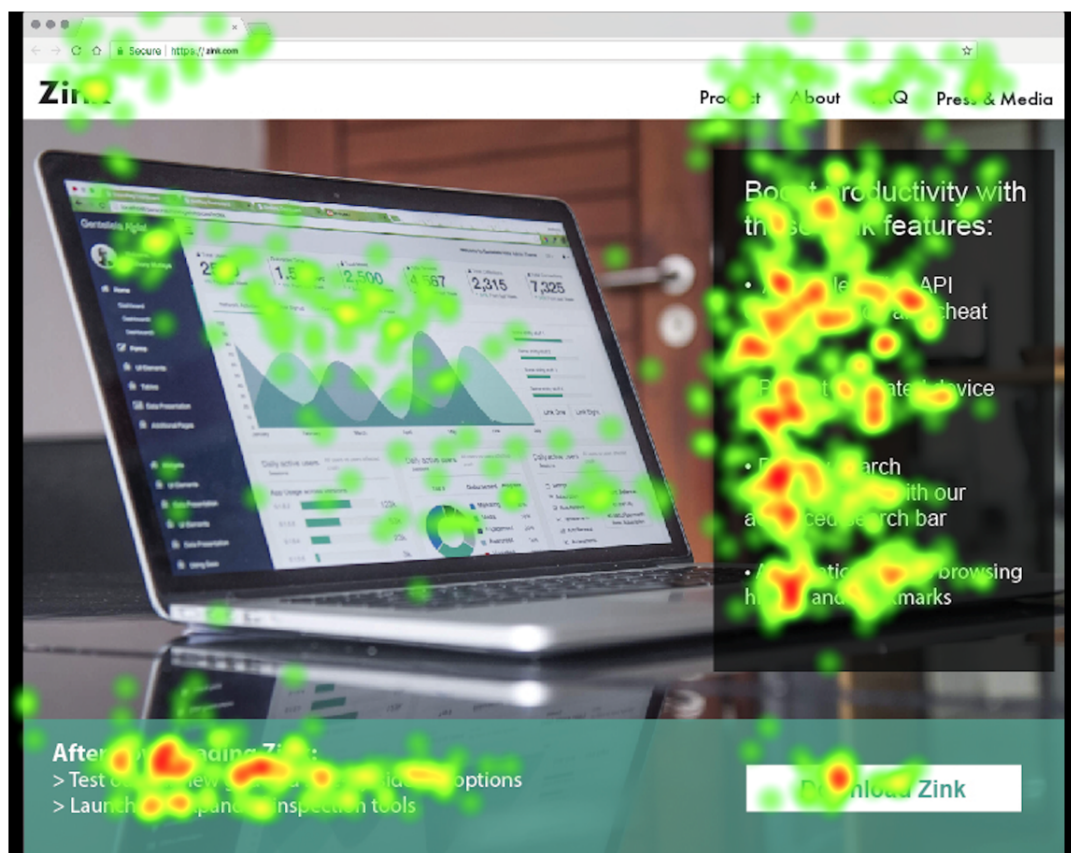
**Sample selection.** A total of 24 participants were tested in the eye tracking study; twelve exposed to Condition 1 and twelve exposed to Condition 2. Participants were undergraduate and

graduate students at a Midwestern university recruited using snowball sampling methods, with a small portion of students receiving extra credit for participating in the study.

***Pretest results.*** 41 percent (n=10) of participants were able to recall the product, while 54.1% (n=13) were able to recall at least one of the products features included in the advertisement. Because participants had such a low comprehension of the advertisement, it is difficult to measure their intention to adopt the product. However, based on the results in Figure 1 and Figure 2 it appears that both samples looked at the entirety of the advertisement. This

indicates that the first study's manipulation check failure was not due to participants not fully seeing the advertisement.

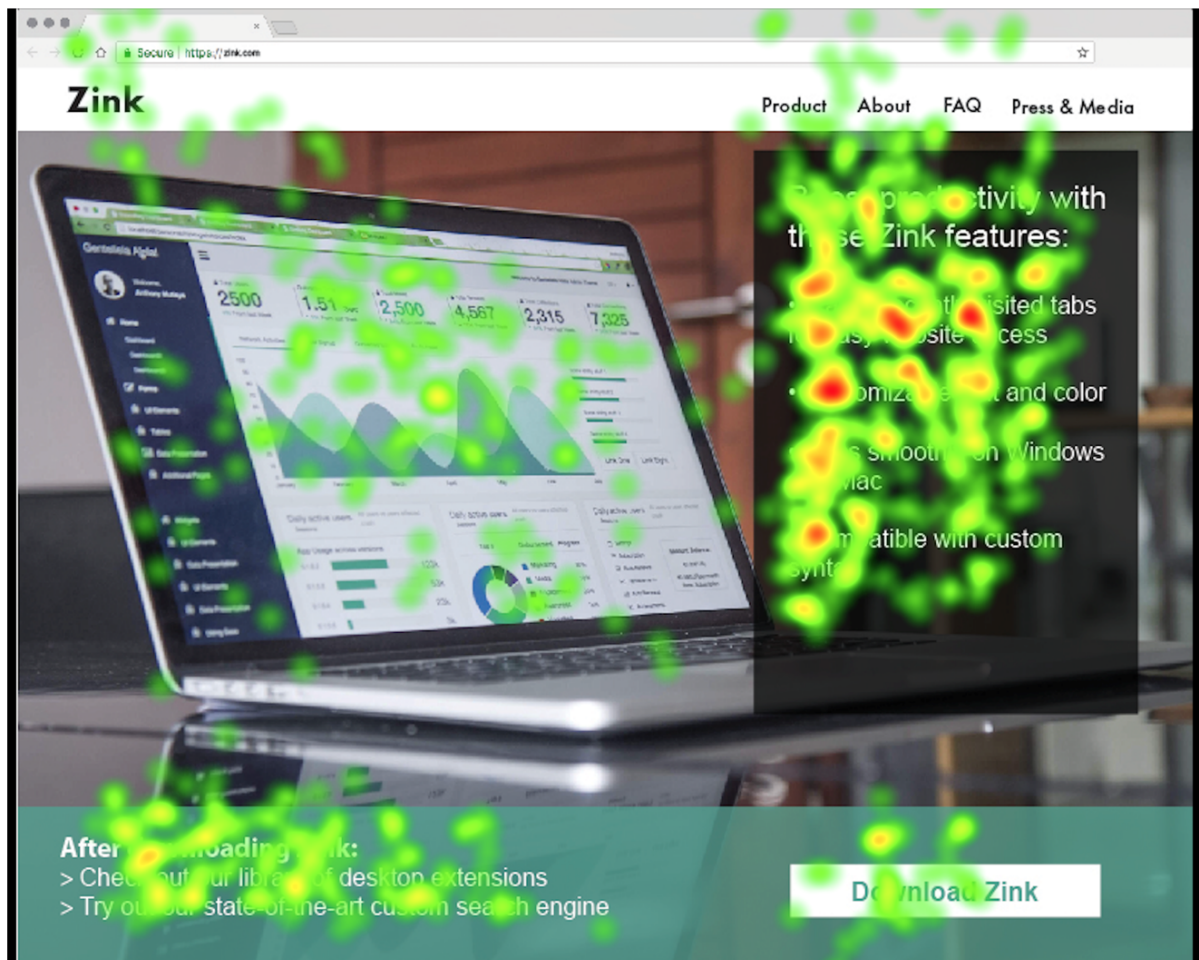
Figure 1



*Note.* Product features that conveyed job relevance are displayed on the right-hand side. Product features that conveyed PEOU are featured at the bottom.

Figure 2

*Condition 2 Eye Tracking Experiment Results Testing Stimuli's Exposure*



*Note.* Product features that conveyed job relevance are displayed on the right-hand side. Product features that conveyed PEOU are featured at the bottom.

**Pretest conclusion.** The two pretests indicated that the stimuli presented an opportunity to measure two messages for each factor. However, instead of comparing conditions, it was best to measure how well the model predicted PU based on the results of the two messages for each factor.

**Main study**

Following both pretests, the online experiment was conducted. The goal of this study was to investigate the predictive power of job relevance and perceived ease of use (PEOU) when shaping an IT professionals' perceived usefulness (PU) of a product. Additionally, the study investigated whether PEOU influences a user's attitude toward the product. Insights will be used to help marketing communicators develop marketing communication messages that target users' information and occupation needs.

**Method.** To access the study, study participants clicked on a link in Amazon Mechanical Turk, which led them to where the study was hosted in Qualtrics. Participants recruited via snowball sampling were also IT professionals who were given the Qualtrics link to navigate to the experiment. Amazon Mechanical Turk was selected as the recruiting tool because it often reduces nonresponse error, it's often more representative of the population than other recruiting methods, and existing research indicated that it is a reliable source of "experimental data in judgment and decision-making" (Paolacci, Chandler, & Ipeirotis, 2010, p. 416).

When directed to Qualtrics, participants were randomly assigned to one of four study conditions using a randomization tool offered by Qualtrics. Before beginning the study, participants were asked to read the purpose of the study and electronically submitted informed consent; this was identical for all participants. Then, all participants read identical scenarios. A detailed version of the scenario each participant was exposed to is located in Appendix A. The scenario served as an explanation for participants as to why they were searching for a new Web browser.

Following this, participants were exposed to one of four possible stimuli, contingent on the study condition they were assigned to. Participants were asked a series of questions regarding their perception of the stimuli's usefulness, relevance to their occupation, perceived ease of use,

their intention to use the stimuli; as well as their attitude toward the product. Following these questions were a list of demographic questions.

**Scales.** All scales used in the pretest were the same scales used in the study. To test the scale's reliability, Cronbach alpha coefficients were generated; and to test the scale's validity, all scale items were factor analyzed using principal component analysis with Varimax rotation.

The factor analysis of the perceived usefulness (PU) scale items show that all variables were highly correlated and loaded onto only one factor. The perceived usefulness scale also proved to be highly reliable (four items,  $\alpha = .9$ ). Then, the scale measuring job relevance was factor analyzed. Three items questioned the user's perception of how well the product could boost their productivity at work and whether or not the product would be useful to them in their work setting. Factor analysis shows that all variables were highly correlated and loaded onto only one factor. The scaled used to measure job relevance had a Cronbach alpha of .7.

Perceived ease of use (PEOU) was measured with four items, questioning how easy it would be for the user to adopt and start using the product in their work environment. After factor analyzing the scale, one item "I think it would be easy to get Zink to do what I want it to do" was thrown out. This is because the item appears to be loaded on multiple scales. After throwing out this item, the scale's Cronbach alpha of .8. Lastly, the four-item scale used to measure the participant's attitude toward the web browser had a Cronbach alpha of .9.

**Sample selection.** The study focused on IT professionals, specifically professionals who work within software development. Therefore, the stimuli had to be a tool useful to the subject population regardless of the industry they work within or level of employment. Study participants were recruited using Amazon Mechanical Turk and snowball sampling methods. Participants recruited from Amazon Mechanical Turk were individuals registered as working

within Software and IT Services. Therefore, only individuals who have this listed saw the request for participants. The study acknowledged that it is possible, yet unlikely, that individuals were dishonest about their employment industry. The researcher used Amazon Mechanical Turk's premium qualification feature so that only individuals who were registered as working in Software and IT Services were capable of completing the study.

Among the 105 participants used for data analysis, 76.2% (n=80) were male and 24.8% (n=26) were female. Participant age groups were as follows: 46% (n=49) were ages 25-34, 21% (n=23) were ages 35-44, 19% (n=20) were ages 18-24, 10% (n=11) were ages 45-54, and 3% (n=3) were ages 55-64, and one participant was ages 65-74. The occupational level of the participants were as follows: 63% (n=66) were mid-level management, 20% (n=21) were entry-level employees, 10.5% (n=11) were students, 8.5% (n=9) were upper-level management, and 1.9% (n=2) were executive board members. The majority of study participants (42.4%, n=44) have worked in the industry for 4-9 years.

**Statistical analysis.** To test whether or not there was a true high and low condition, a manipulation check between the study conditions was conducted using the Statistical Package for the Social Sciences (SPSS). For the manipulation check, the composite means of PEOU and job relevance for each study conditions were measured and compared to look for significant statistical variance among the high and low groups. After testing the manipulation between the populations, it appeared there was no statistically significant variances between the high and low conditions of the independent variables. However, the manipulation check's failure allowed the study to focus on testing the two factors – PEOU and job relevance – by testing messages with different wording that measuring the same concept. This allows for analysis to focus on how the study population perceived the two different messages for both PEOU and job relevance. If both

messages established a statistically significant relationship between the two factors and dependent variable, this would evidence the predictability of perceived usefulness using the model.

Multiple regression was used to assess the ability of PEOU and job relevance to predict PU, as well as test for an interaction between PEOU and job relevance. Before testing for predictive power and statistical significance, outliers that exceeded three standard deviations from the mean were eliminated. Then, because of the hypothesized interaction between PEOU and job relevance, predictor variables were mean-centered. Then, a multiple regression was conducted to test hypothesis 1, followed by a simple regression to test hypothesis 2.

## Results

About 18 percent of the variance in perceived usefulness is explained by the factors job relevance and perceived ease of use, as well as the interaction between PEOU and job relevance. Table 2 indicates that there are no main effects of job relevance ( $p = .090$ ) or PEOU ( $p = .516$ ). However, the interaction effect between job relevance and PEOU is significant ( $p < .001$ ). This showed support for the interaction effect postulated in Hypothesis 1.

Table 2

*Summary of Multiple Regression Analysis for Variables Predicting Perceived Usefulness*

Model	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	3.326	.081		41.111	.000
Job relevance	-.179	.104	-.161	-1.712	.090
PEOU	-.076	.117	-.063	-.651	.516
Job relevance*PEOU	-.563	.122	-.451	-4.608	.000

*Note.* Dependent variable: Likert perceived usefulness mean score.

To see the direction of the interaction between PEOU and job relevance, see Appendix E. The relationship hypothesized is that as job relevance and perceived ease of use increase,



perceived usefulness will increase. But, if there's a decrease in perceived ease of use or job relevance, then there will be a decrease in the overall perceived usefulness of the product. This hypothesized direction is also supported.

Table 3 indicated that when looking at the main effects, there is a statistically significant relationship between a consumer's attitude toward a product and their PEOU regarding the product. Furthermore, this relationship showed that nearly 13 percent of variance in a user's attitude toward the product was predicted with PEOU, which can be seen in Table 4.

Table 3

*Summary of Simple Regression Analysis for Variables Predicting Attitude Toward Product*

Model	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	4.514	.226		19.967	.000
PEOU	-.390	.099	-.361	-3.926	.000

*Note.* Dependent variable: Attitude toward product.

Table 4

*Model Summary for Variables Predicting Attitude Toward Product*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	SEE
1	.361	.130	.122	.74737

*Note.* Predictors: (Constant), PEOU

## Discussion and Conclusion

The failed manipulation check allowed the research to focus on studying two messages tested by the entire study population, as opposed to different conditions. With this approach, by testing both factors with different wording, the study was really looking at how well the factors can predict PU. The advantages are that because the entire model was found to be statistically

significant, and this study determined that PEOU and job relevance can predict PU, as demonstrated with four message combinations. Both the model and the hypothesized direction of the relationship were found statistically significant when looking at the interaction effects.

As Chan and Teo (2007) pointed out, there is little TAM research that focused on interaction effects despite varied findings found when the core TAM model is tested. Although their conclusion was that the inconsistent findings were the result of various study settings focusing on various types of technology, another possible reason was an untested interaction happening between factors used to predict perceived usefulness.

Specifically, no prior study has investigated the interaction relationship between job relevance and PEOU and, as mentioned, few studies look for interactions between PU determinants in general. Consequently, this study focused on the relationship among PEOU, job relevance, and PU to better understand which IT professionals value: having a tool that's easy for them to learn and use or, having a tool that is extremely relevant to their occupational duties. While it's possible for a product to be both extremely relevant and easy to use, oftentimes there will be products in which this is not possible due to the nature of the type of technology.

The controversial role of PEOU and in the TAM might be explained by looking at a close look at the main effects and interaction effects it has in all models (Gefen & Straub, 2008). It is possible that the role of PEOU and its effect on PU will quite often interact with another variable because, specifically in this case, no amount of PEOU will be acceptable if the tool is not relevant to their job or useful to them (Hu et al., 2003). This emphasized the idea that a minimum threshold of job relevance must exist in order for PEOU to effectively influence PU. Therefore, it's possible that in other research settings there will often be another variable present that influences the role perceived ease of use has when determining a user's PU. This study

demonstrated the possibility of a minimum job relevance threshold and how that threshold impacts the relationship between PEOU and PU.

Additionally, when Venkatesh and Bala (2008) presented TAM3, they argued that a crossover effect between the determinants of PEOU and the determinants of perceived usefulness was not possible. However, the study results indicated an interaction between job relevance (a cognitive determinant of perceived usefulness) and PEOU. This differs from TAM3 in that job relevance not only affected PU but also affected the relationship between PEOU and PU. Therefore, it's possible that some of the unexplained variances, or the large portion of contradicting results in TAM research, can be attributed to PU determinants interacting with one another and changing the nature of the relationship among the factors. If this is the case, it could be valuable for researchers to revisit studies with unexplained variances to look for possible interactions.

In the current literature, there are also mixed reports on the relationship between PEOU and a user's attitude toward a product; with some studies suggesting a direct relationship while others suggested an indirect relationship mediated by PU (Agag & El-Masry, 2016; Jahangir & Belgum, 2008; Kim et al., 2009). However, this contradicted information science (IS) research which consistently showed support for a direct relationship between PEOU and attitude (Madden et al., 1992). This study showed support for a direct relationship between PEOU and attitude. It's possible this relationship existed for this specific study because the intrinsic qualities of the stimuli (a web browser) directly impacted IT professionals' work outcome. Other scenarios in which the intrinsic qualities of the product did not directly impact the desired outcome could have a different result (Gefen & Straub, 2000).

A possible reason why PEOU positively influences attitude is that PEOU influences the user's perceived control. If the user did not feel that they do not have the ability to use the product, their attitude toward the product was likely to be less positive than toward product's they feel better suit their capabilities. This was because the attitude is the user's belief of what will happen if they accept a piece of technology. If they perceived the technology is too complex, then it was likely they didn't believe a positive consequence is possible. This reflected the theory of planned behavior (TPB), one of TAM's theoretical frameworks, which introduced the idea of perceived control and its influence on attitude (Madden et al., 1992). Therefore, future research should look for an interaction between PEOU and perceived control when influencing the user's attitude toward the product.

### **Contributions and Implications**

In cases where it's not possible for the product to be both extremely easy to use and have high job relevance, digital product designers will need to set specific objectives for how easy the product should be while still ensuring that product offers the least requisite amount of job relevance for the user to perceive the product as useful. This makes understanding which attribute is more important to the user and how the two attributes influence with one another will help digital product designers develop a hierarchy of important product features and attributes. Additionally, this will also help marketing communicators know which product features to highlight when positioning products for that specific target audience.

The importance of inciting a positive attitude toward a product is highlighted in the innovation-decision process; when individuals are gathering data to build their knowledge with the goal to form an attitude toward the product. As mentioned, PEOU's influence on attitude is often contingent on the fit between the technology's intrinsic characteristics and the task. This

provided insight for digital product designers when determining the intrinsic qualities of a product. For example, if the website is only the means to acquiring a different product, the website's PEOU was far less important than the product itself because the website is merely a means to an end. Therefore, digital product designers should attempt to build a product that offers compatibility between the product's intrinsic qualities, the largest number of intended user's capabilities, and the tasks the product is intended to accomplish. This, then, would require more specific initial product design research to gauge the median capability of the intended target audience, as well as cognitively map the tasks the product will be used to complete.

As the theory of planned behavior predicted, if more people feel that they are capable of using a product, then more people will be encouraged to complete the action (accepting the piece of technology). For marketing communicators, this provides insight into developing stronger key messages and choosing more strategic communication mediums. For instance, especially when introducing a particularly novel piece of technology, instead of focusing on all the features a piece of technology may offer, marketers could focus on how easy it is to use a product. As mentioned, as user's experience and expertise grow, they focus more specifically on details that convey information about the technology's instrumental use (Heiman et al., 2001). So, as the piece of technology's novelty wears off, key messaging could focus on newly added features because the target audience's attitude toward the particular piece of technology is already shaped.

### **Limitations and Future Research**

The original intent of the study was to test different message conditions with varying levels of job relevance and PEOU. When the manipulation check between the conditions failed it shifted the focus of the study; opening the opportunity to test the two different factors with two

different messages. By transitioning to a more general study, this sets a backdrop for future research to test the factors – PEOU and job relevance – using multiple study conditions. While this research ended up uncovering an interaction between predictive PU factors, future research that utilizes study conditions can begin the process of determining predictive factor's minimum threshold requirements when impacting a user's PU.

Additionally, the research participants in this study were all IT professionals, so consequently, the results are limited to the IT professional community. Future research should focus on the required minimum thresholds for target audiences relevant to the product (e.g. testing physicians' perception of new medical equipment).

While the number of participants were sufficient for an online experiment, the study would be more generalizable with more participants (n=105). Additional participants would not only make the results more generalizable, but also could include and delve deeper into the subsets of IT professionals. For instance, it's possible there's a divide in perceived usefulness between software developers and those who work in technological hardware maintenance. Also, a larger number of participants would have allowed the researcher to conduct more complex statistical analysis (e.g. structured equation modeling) to take a closer look at the relationships among the variables in the model.

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## **APPENDIX A**

Participants were presented with a scenario prior to seeing the study stimuli. All participants read the same scenario, listed below.

### **Scenario**

Imagine you are dissatisfied with your current web browser and are seeking to find a new one to complete tasks at work. During your search, you find a web browser, Zink. Find out more about Zink by reading its product features and then answer the following questions.

## **APPENDIX B**

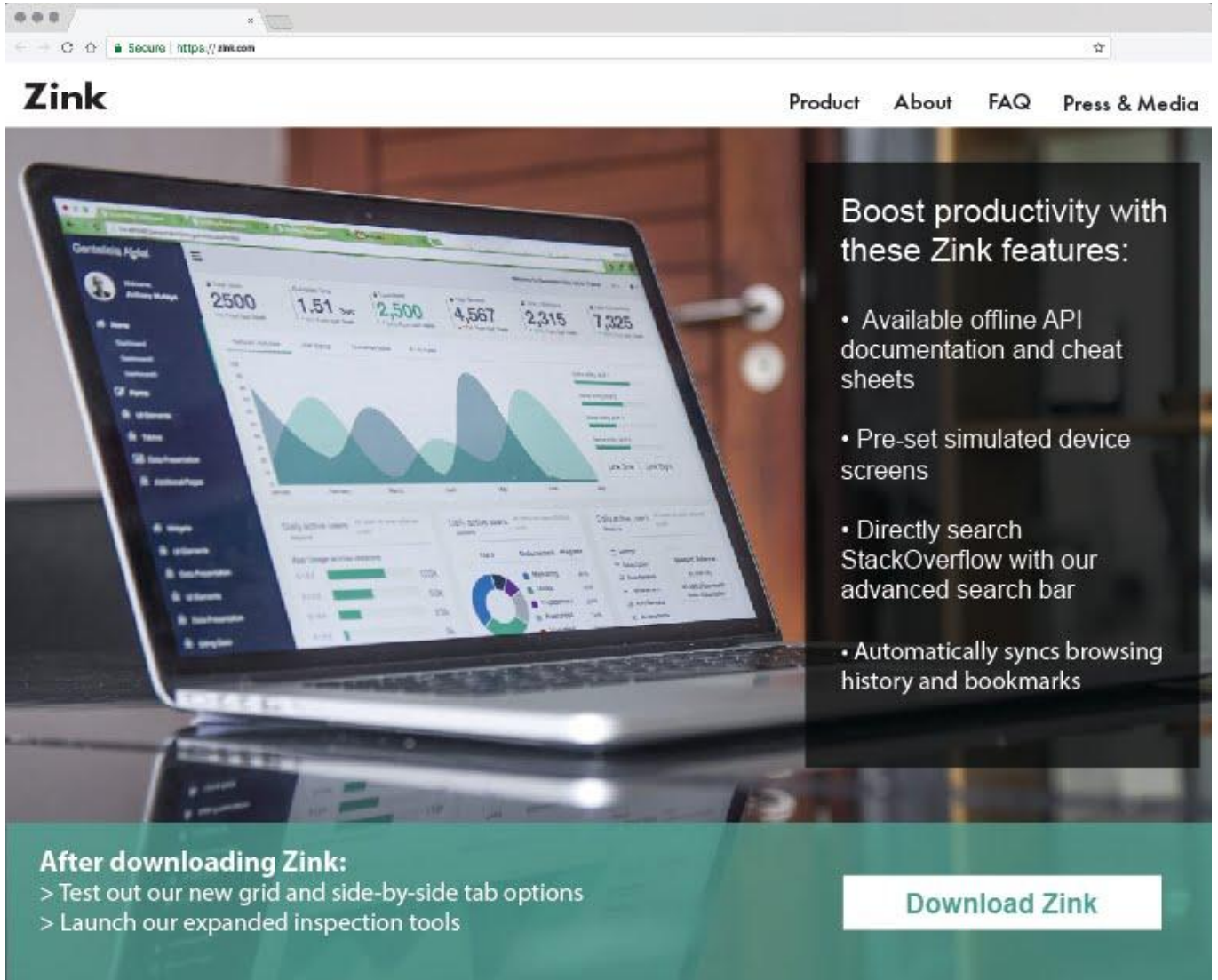
Prior to developing the study's stimuli three student software developers and one entry-level software developer were interviewed to identify web browser features they liked/disliked, as well as found useful/not useful. Below are the questions each participant was asked.

1. Describe your ideal web browser.
2. List web browser features that you consider essential to its functionality.
3. List web browser features that you do not consider essential to its functionality, but useful for improving your productivity.
4. Is there anything your preferred web browser is incapable of doing that you wish it could to improve your work productivity?
5. Please list any web browser features that you find useless when trying to complete tasks at work.
6. Are there any web browser functions that you think would slow down your work productivity?
7. What are features of a web browser that makes it easier to use?

## APPENDIX C

### Stimuli 1

Condition: PEOU (high), Job relevance (high)



The screenshot shows the Zink website interface. At the top, there's a navigation bar with links for Product, About, FAQ, and Press & Media. The main content area features a dashboard with several charts and data points. A sidebar on the left lists various features like 'Available offline API documentation and cheat sheets', 'Pre-set simulated device screens', 'Directly search StackOverflow with our advanced search bar', and 'Automatically syncs browsing history and bookmarks'. A large green button labeled 'Download Zink' is prominently displayed at the bottom right.

**Zink**

Product About FAQ Press & Media

Boost productivity with these Zink features:

- Available offline API documentation and cheat sheets
- Pre-set simulated device screens
- Directly search StackOverflow with our advanced search bar
- Automatically syncs browsing history and bookmarks

**After downloading Zink:**

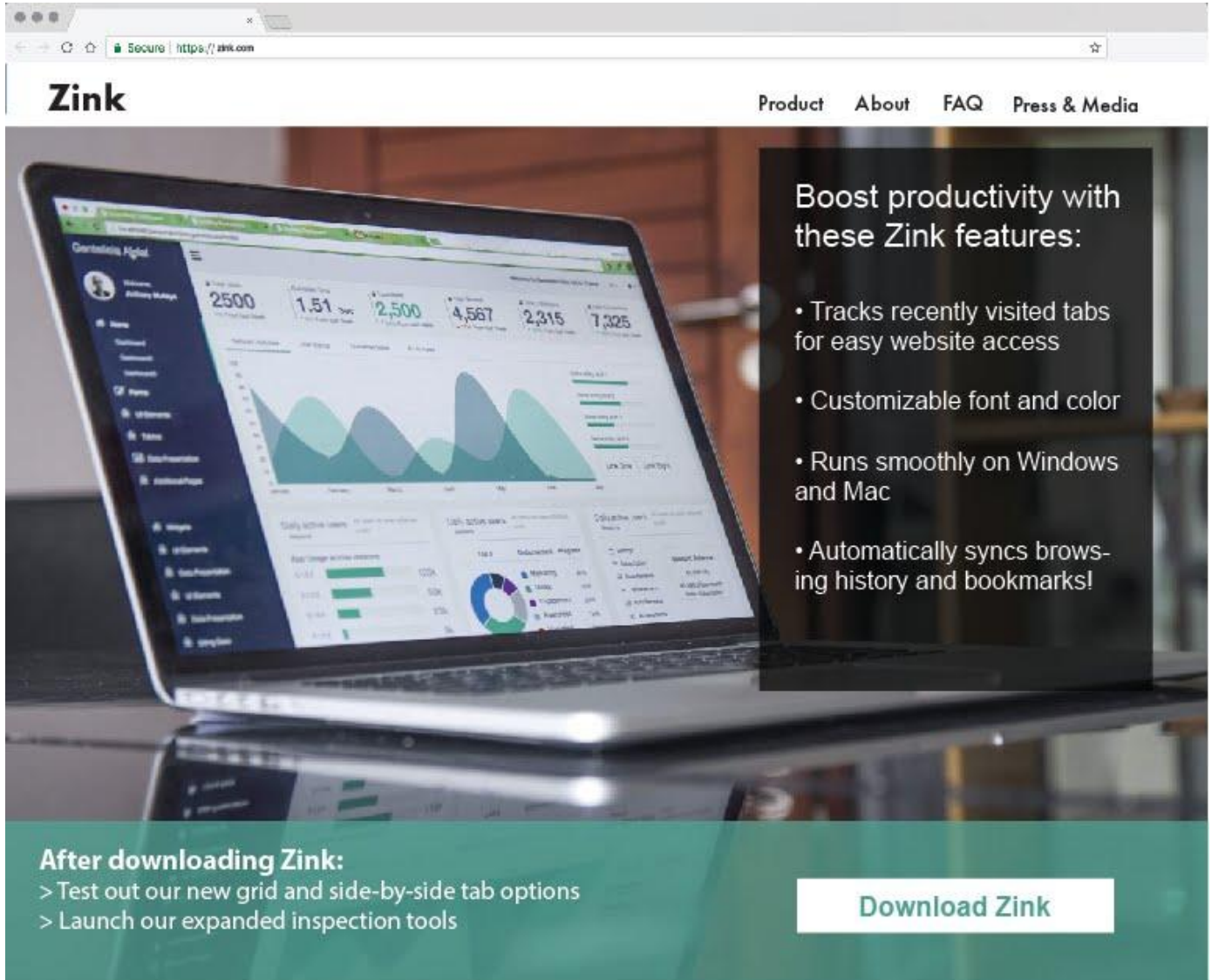
- > Test out our new grid and side-by-side tab options
- > Launch our expanded inspection tools

**Download Zink**

## APPENDIX C

### Stimuli 2

Condition: PEOU (high), Job relevance (low)



The screenshot shows the Zink website interface. At the top, there's a navigation bar with links for Product, About, FAQ, and Press & Media. The main content area features a dashboard with several data visualizations: a line chart showing trends over time, a bar chart, and a donut chart. The dashboard is titled 'GentleSite Alpha' and includes a sidebar with navigation options like Home, Settings, and Reports. A dark overlay on the right side of the dashboard contains the text 'Boost productivity with these Zink features:' followed by a list of features. At the bottom, there's a green banner with the text 'After downloading Zink:' and two bullet points, along with a 'Download Zink' button.

**Boost productivity with these Zink features:**

- Tracks recently visited tabs for easy website access
- Customizable font and color
- Runs smoothly on Windows and Mac
- Automatically syncs browsing history and bookmarks!

**After downloading Zink:**

- > Test out our new grid and side-by-side tab options
- > Launch our expanded inspection tools

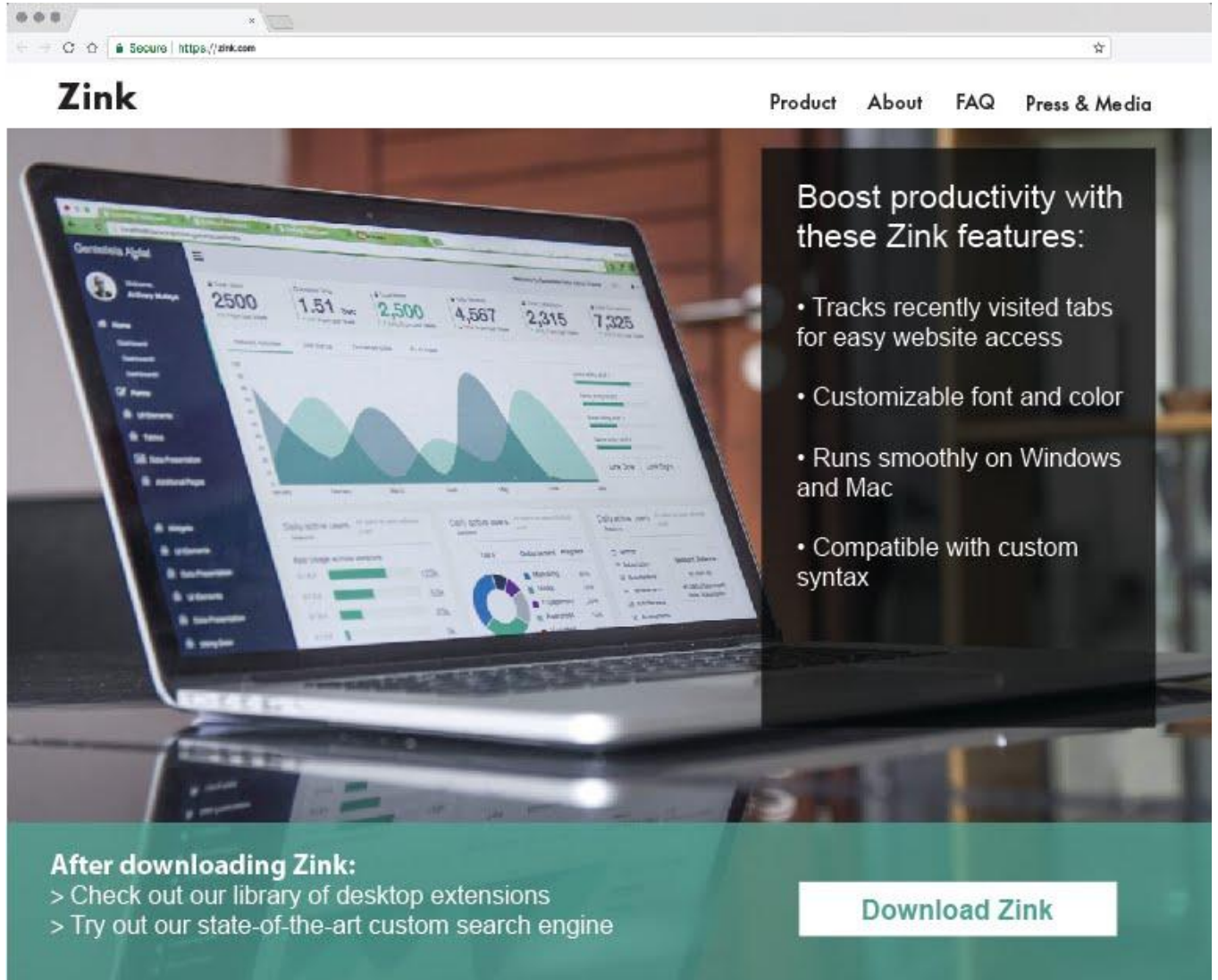
[Download Zink](#)



## APPENDIX C

### Stimuli 3

Condition: PEOU (low), Job relevance (low)



The screenshot shows the Zink website interface. At the top, there's a navigation bar with links for Product, About, FAQ, and Press & Media. The main content area features a dashboard with several data points and charts. A large, semi-transparent text box on the right lists features of Zink. At the bottom, there's a green banner with text about downloading Zink and a button to download it.

**Zink**

Product About FAQ Press & Media

Boost productivity with these Zink features:

- Tracks recently visited tabs for easy website access
- Customizable font and color
- Runs smoothly on Windows and Mac
- Compatible with custom syntax

**After downloading Zink:**

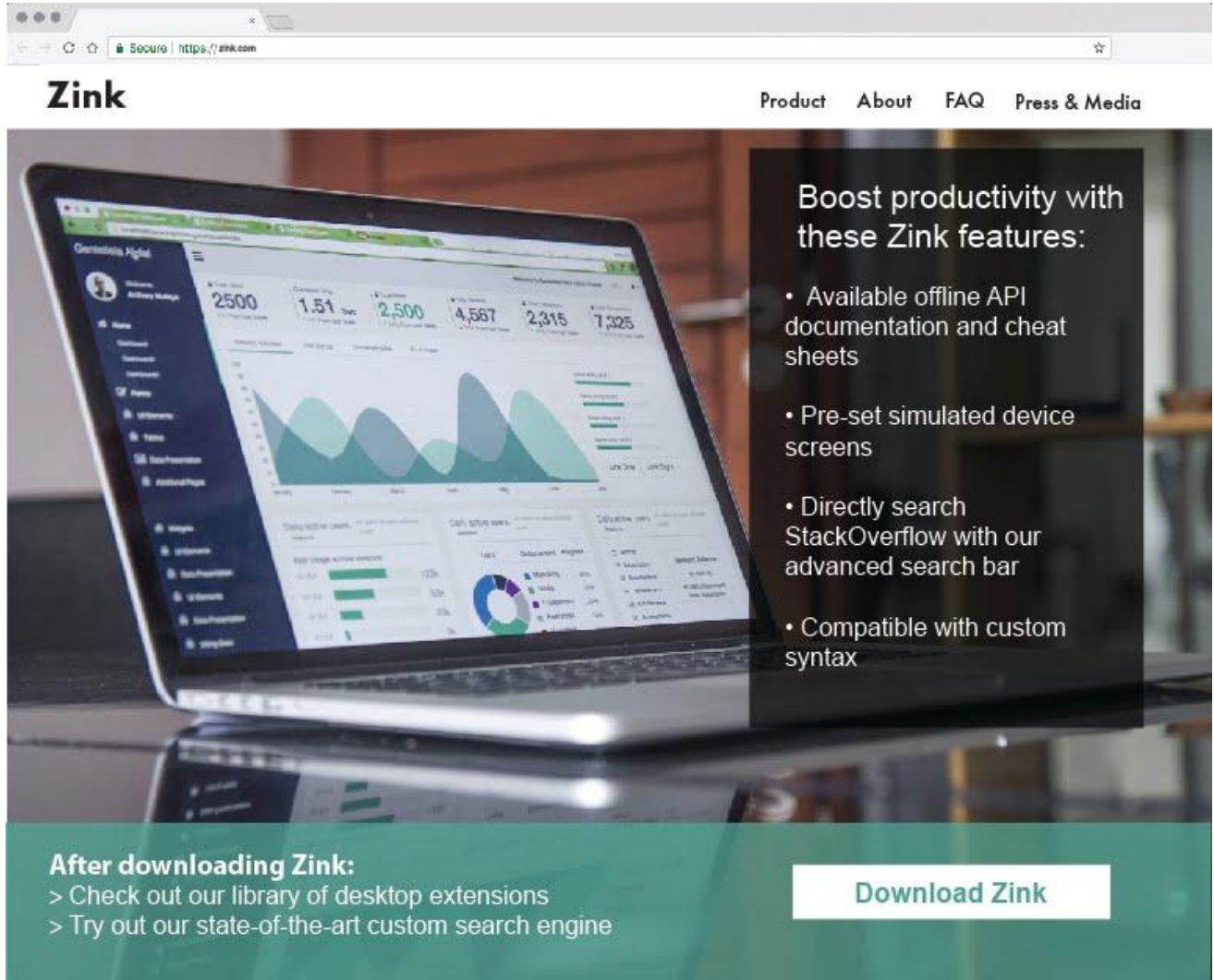
- > Check out our library of desktop extensions
- > Try out our state-of-the-art custom search engine

[Download Zink](#)

## APPENDIX C

### Stimuli 4

Condition: PEOU (low), Job relevance (high)



The screenshot shows the Zink website in a web browser. The browser's address bar displays "https://zink.com". The website has a dark blue header with the "Zink" logo on the left and navigation links "Product", "About", "FAQ", and "Press & Media" on the right. The main content area features a large dashboard with a left sidebar menu, a top section with six data cards (e.g., "2500", "1.51 sec", "2,500", "4,567", "2,315", "7,325"), a central area with a line chart and two smaller bar charts, and a bottom section with a donut chart and several text-based metrics. A dark grey overlay on the right side of the dashboard contains the text "Boost productivity with these Zink features:" followed by a bulleted list of features. At the bottom of the page, a green banner contains the text "After downloading Zink:" followed by two bullet points and a white "Download Zink" button.

**Zink** Product About FAQ Press & Media

Boost productivity with these Zink features:

- Available offline API documentation and cheat sheets
- Pre-set simulated device screens
- Directly search StackOverflow with our advanced search bar
- Compatible with custom syntax

**After downloading Zink:**

- > Check out our library of desktop extensions
- > Try out our state-of-the-art custom search engine

[Download Zink](#)



## APPENDIX D

Table 5

*Perceived Ease of Use Items*

Item	<i>M</i>	<i>SD</i>
Overall, I think Zink would be easy to use.	2.16	.833
Learning how to use Zink would be easy.	2.11	.858
I think it will be easy for me to learn how to be skillful using Zink.	2.19	.900

*Note.* Adopted from Liang et al. (2003).

Table 6

*Perceived Usefulness Items*

Item	<i>M</i>	<i>SD</i>
Using Zink in my job will increase my productivity.	3.23	.983
Using Zink in my job will make me more efficient.	3.27	.993
I find Zink to be useful to my job.	3.27	1.003
Using Zink would help me accomplish tasks more quickly.	3.26	.991

*Note.* Adapted from Bhattacharjee and Sanford (2006).

## APPENDIX D

Table 7

*Job Relevance Items*

Item	<i>M</i>	<i>SD</i>
Using Zink would make it easier to do my work.	2.6	.977
Using Zink would help me accomplish tasks at work.	2.45	.888
My work relies on using tools like Zink.	2.44	1.091

*Note.* Adapted from Bhattacharjee and Sanford (2006).

Table 8

*Intention to Use Items*

Item	<i>M</i>	<i>SD</i>
Assuming I have access to this browser, I intent to use it to complete my work.	3.3	1.001
Given that I have access to this browser, I predict I would use it to complete my work.	3.42	1.026
What is the probability that you will try using Zink if it becomes available to you?	2.36	1.039

*Note.* Adopted from Venkatesh and Davis (2000).

## APPENDIX D

Table 9

*Processing Fluency Items*

Item	<i>M</i>	<i>SD</i>
How easy or difficult do you find it to visually process this advertisement?	2.48	1.428
How easy or difficult do you find it to visualize this browser with your eyes closed?	2.82	1.440
How easy or difficult would you find describing this browser at a later point in time?	2.82	1.453
How easy or difficult do you find it to process this advertisement?	2.48	1.365

*Note.* Adopted from Landwehr et al. (2011)

Table 10

*Attitude Toward Advertised Product Items*

Item	<i>M</i>	<i>SD</i>
Extremely good/Extremely bad	3.64	0.889
Harmful/Beneficial	3.74	0.941
Satisfactory/Unsatisfactory	3.67	0.987
Favorable/Unfavorable	3.65	0.980

*Note.* Adopted from Petty et al. (1983).

## APPENDIX E

